

A-496A

- 1 -

SEQUENCE LISTING

<110> Snavelly, Marshall D.

<120> ENHANCED SOLUBILITY OF RECOMBINANT PROTEINS

<130> A-496

<140> 08/997,918

<141> 1997-12-24

<160> 59

<170> PatentIn Ver. 2.1

<210> 1

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 1

ctgggtttaca tggctaaact ggctgaacag gctgaacgtt acga

44

<210> 2

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 2

agaaatgggt gaattcatgg aaaaagtttc cgctgctgtt gacgg

45

<210> 3

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 3

tgacgaactg accgttgaag aacgtaacct gctgtccgtt gctta

45

<210> 4  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 4  
caaaaacgtt atcgggtgctc gtcgtgcttc ctggcgtatc atctc 45

<210> 5  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 5  
ctccatcgaa cagaaagaag aatcccgtgg taacgacgac cacgt 45

<210> 6  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 6  
taccgctatc cgtgaatacc gttccaaaat cgaaaccgaa ctgtc 45

<210> 7  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 7  
cggatatctgc gacggtatcc tgaaactgct ggactcccgt ctgat 45

<210> 8  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 8  
cccggctgct gcttccggtg actccaaagt tttctacctg aaaat 45

<210> 9  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 9  
gaaaggtgac taccaccggt acctggctga gttttaaacc ggtca 45

<210> 10  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 10  
ggaacgtaaa gacgctgctg aacacaccct ggctgcttac aaatc 45

<210> 11  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 11  
cgctcaggac atcgctaacg ctgaactggc tccgaccac ccgat 45

<210> 12  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 12  
ccgtctgggt ctggctctga acttctccgt tttctactac gaaat 45

<210> 13  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 13  
cctgaactcc ccggaccgtg cttgcaact ggctaaacag gcttt 45

<210> 14  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 14  
cgacgaagct atcgctgagc tcgacaccct gggatgaagaa tccta 45

<210> 15  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 15  
caaagactcc accctgatca tgcagctgct gcgtgacaac ctgac 45

<210> 16  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 16  
cctgtggacc tccgacatgc aggacgacgc tgctgacgaa atcaa 45

<210> 17  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 17  
agaagctgct gctccgaaac cgaccgaaga acagcaggct agctaa 46

<210> 18  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 18  
gtttcggagc agcagcttct ttgatttcgt cagcagcgtc 40

<210> 19  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 19  
gtcctgcatg tcggaggtcc acagggtcag gttgtcacgc agcag 45

<210> 20  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 20  
ctgcatgatc aggggtggagt cttttagtaga ttcttcaccc aggggt 45

<210> 21  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 21  
gtcgagctca gcgatagctt cgtcgaaagc ctgttttagcc aggtt 45

<210> 22  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 22  
gcaagcacgg tccggggagt tcaggatttc gtagtagaaa acgga 45

<210> 23  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 23  
gaagttcaga gccagaccca gacggatcgg gtgggtcggg gccag 45

<210> 24  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 24  
ttcagcgtta gcgatgtcct gagcggattt gtaagcagcc agggg 45

<210> 25  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 25  
gtgttcagca gcgtctttac gttcctgacc ggttttaaac tcagc 45

<210> 26  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 26  
caggtaccgg tggtagtcac ctttcatttc caggtagaaa acttt 45

<210> 27  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 27  
ggagtcaccg gaagcagcag ccgggatcag acgggagtc agcag 45

<210> 28  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 28  
tttcaggata ccgtcgcaga tacggacag ttcggtttcg atttt 45

<210> 29  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 29  
ggaacggtat tcacggatag cggtaacgtg gtcgtcgta ccacg 45

<210> 30  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 30  
ggattcttct ttctgttcga tggaggagat gatacgccag gaagc 45

<210> 31  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 31  
acgacgagca ccgataacgt ttttgtaagc aacggacagc aggtt 45



<210> 32  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 32  
acgttcttca acggtcagtt cgtcacggtc aacagcagcg gaaac 45

<210> 33  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 33  
tttttccatg aattcaacca tttcttcgta acgttcagcc tgttc 45

<210> 34  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 34  
agccagttta gccatgtaaa ccagttcttc acgaccggaa gccat 45

<210> 35  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 35  
cacaccacag gatcccatat ggcttctggt cgtgaagaa 39

<210> 36  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 36  
caacacccac tcgagttagc tagcctgctg ttcttcggtg c 41

<210> 37  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 37  
ccacaccag ctagcctgct gttcttcggt cggtttogga gcagcagc 48

<210> 38  
<211> 786  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Full length  
synthetic GF-14R gene

<400> 38  
atggcttccg gcagagaaga actgggtttac atggctagac tggctgaaca ggctgaacgt 60  
tacgaagaaa tgggtgaatt catggaaaaa gtttccgctg ctggtgacgg tgacgaactg 120  
accgttgaag aacgtaacct gctgtccgtt gcttacaaaa acgttatcgg tgctcgtcgt 180  
gcttccctggc gtatcatctc ctccatcgaa cagaaagaag aatcccgtgg taacgacgac 240  
cacgttaccg ctatccgtga ataccgttcc aaaatcgaaa ccgaactgtc cggatatctgc 300  
gacggatatcc tgaaactgct ggactccggt ctgatcccggt ctgctgcttc cggtgactcc 360  
aaagttttct acctgaaaat gaaaggtgac taccaccggt acctggctga gtttaaaacc 420  
ggtcaggaac gtaaagacgc tgctgaacac accctggctg cttacaaatc cgctcaggac 480  
atcgctaacy ctgaactggc tccgacccac ccgatccgtc tgggtctggc tctgaacttc 540  
tccgttttct actacgaaat cctgaactcc ccggaccgtg cttgcaacct ggctaaacag 600  
gctttcgacg aagctatcgc tgagctcgac accctgggtg aagaatccta caaagactcc 660  
accctgatca tgcagctgct gcgtgacaac ctgaccctgt ggacctccga catgcaggac 720  
gacgtgctg acgaaatcaa agaagctgct gtcggaaac cgaccgaaga acagcaggct 780  
agctaa 786

<210> 39  
<211> 39  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 39  
cacccaaccg ctagcggtac tggcgacccc aagttcgag 39  
  
<210> 40  
<211> 33  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 40  
cacccaaccg gatccattag tccaggtcgc tag 33  
  
<210> 41  
<211> 50  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 41  
cacccagcta gcaataacga tgacgatgac aaaactccat taggtcctgc 50  
  
<210> 42  
<211> 31  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 42  
cacccactcg agattacggc tgagccagat g 31

<210> 43  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 43  
cacccagcta gcaataacga tgacgatgac aaagcaccgt actggacc

48

<210> 44  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 44  
cacaccacac tcgagattat tccaggtagt ccgg

34

<210> 45  
<211> 51  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 45  
cacaccacaa ggatccccaa taccgacgat gacaaagcac cgtactggac c

51

<210> 46  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 46  
cacaccacac tcgagattat tccaggtagt ccgg

34

<210> 47  
<211> 525  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic DNA  
fragment encoding amino acids 22-194 of human OPG

<400> 47  
atggaaactt ttccacctaa atatcttcat tatgatgaag aaactagtca ccagctgctg 60  
tgcgacaaat gtccctcggg tacctacctg aaacagcact gcacccgctaa atggaaaacc 120  
gtttgcgctc cttgtccgga ccactactac accgactcct ggcacacctc cgacgaatgc 180  
ctgtactgct caccggtttg caaggagctg cagtacgtta aacaggaatg caaccgtacg 240  
cacaaccgtg tatgcgaatg caaagaaggt cgttacctgg agatcgaatt ctgcctgaaa 300  
caccgttcct gtccgcctgg ttccggtggt gtacaggctg gtaccccgga acgtaacacc 360  
gtttgcaaac gttgcccgga cggtttcttc tccaacgaaa cctcgagcaa agctccgtgc 420  
cgtaaacaca ccaactgctc cgttttcggt ctctgtttaa cccagaaagg taacgctacc 480  
caccacaaca tctgctccgg taactccgag tcgaccaga aataa 525

<210> 48  
<211> 55  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 48  
caccaaaccg ctagcaataa cgatgacgat gacaagaaaa cttttccacc taaat 55

<210> 49  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 49  
cacaacacag gatccattat ttctggg 27

<210> 50  
<211> 50  
<212> DNA  
<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:  
Oligonucleotide

&lt;400&gt; 50

cacccagtcg acccagaaag gttctacttc cggcgcttcc ggctcgtgaag

50

&lt;210&gt; 51

&lt;211&gt; 30

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:  
Oligonucleotide

&lt;400&gt; 51

cacccaggat ccattactgc tgttcttcgg

30

&lt;210&gt; 52

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;221&gt; PEPTIDE

&lt;222&gt; (4)

<223> Amino acid sequence of the 14-3-3 polypeptide  
(where Xaa = Leu or Ile)

&lt;220&gt;

<223> Description of Artificial Sequence: Internal  
14-3-3 polypeptide fragment

&lt;400&gt; 52

Arg Asn Leu Xaa Ser Val Ala Tyr Lys Asn

1

5

10

&lt;210&gt; 53

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Internal  
14-3-3 polypeptide fragment

&lt;400&gt; 53

Ala Ser Asn Asn Asp Asp Asp Asp Lys

1

5

&lt;210&gt; 54

&lt;211&gt; 6

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Internal  
14-3-3 polypeptide fragment

&lt;400&gt; 54

Arg Leu Gly Leu Ala Asn

1

5

&lt;210&gt; 55

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Enterokinase  
cut site

&lt;400&gt; 55

Ser Thr Leu Ile Met Gln Leu Leu

1

5

&lt;210&gt; 56

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Peptidase cut  
site

&lt;400&gt; 56

Asp Asp Asp Asp Lys

1

5

&lt;210&gt; 57

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Peptidase cut site

&lt;400&gt; 57

Ala Ser Gly Thr Gly  
1 5

&lt;210&gt; 58

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Peptidase cut site

&lt;400&gt; 58

Gly Ser Thr Ser Gly  
1 5

&lt;210&gt; 59

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Description of Artificial Sequence: Amino Acid Linker

&lt;400&gt; 59

Ile Glu Gly Arg Gly Ile Pro Asn Thr Asp Asp Asp Lys  
1 5 10